

Medieval weights and measures

The following systems arose from earlier systems, and in many cases utilise parts of much older systems. For the most part they were used to varying degrees in the Middle Ages and surrounding time periods. Some of these systems found their way into later systems, such as the Imperial system and even SI. There were several types to measure that is given below.

Contents

English system

Danish system

- Length
- Volume
- Weight
- Miscellaneous

Dutch system

- Weight
- Length
- Volume

Finnish system

French system

- Length
- Area
- Volume
- Weight

German system

- Length

Norwegian system

- Length
- Area
- Volume
- Weight
- Nautical
- Monetary
- Miscellaneous

Romanian system

- Volume
- Weight
- Area
- Length

Russian and Tatar systems

Scottish system

- Length

Spanish system

- Length

Swedish system

Length
Area
Volume
Weight
Nautical
Monetary

See also**References****External links**

English system

Before Roman units were reintroduced in 1066 by Norman William the Conqueror, there was an Anglo-Saxon (Germanic) system of measure based on the units of the *barleycorn* and the *gyrd* (rod). The systems partly merged.

Later development of the English system continued by defining the units by law in the Magna Carta of 1215, and issuing measurement standards from the then capital Winchester. Standards were renewed in 1496, 1588 and 1758.

The last *Imperial Standard Yard* in bronze was made in 1845; it served as the standard in the United Kingdom until the yard was internationally redefined as 0.9144 metre in 1959 (statutory implementation: Weights and Measures Act of 1963).

Much of the units would go on to be used in later Imperial units and in the US system, which are based on the English system from the 1700s.

Danish system

From May 1, 1683, King Christian V of Denmark introduced an office to oversee weights and measures, a *justervæsen*, to be led by Ole Rømer. The definition of the *alen* was set to 2 Rhine feet. Rømer later discovered that differing standards for the Rhine foot existed, and in 1698 an iron Copenhagen standard was made. A pendulum definition for the foot was first suggested by Rømer, introduced in 1820, and changed in 1835. The metric system was introduced in 1907.

Length

- *mil* – Danish mile. Towards the end of the 17th century, Ole Rømer connected the mile to the circumference of the earth, and defined it as 12000 *alen*. This definition was adopted in 1816 as the Prussian *Meile*. The coordinated definition from 1835 was 7.532 km. Earlier, there were many variants, the most commonplace the Sjællandsk mil of 17600 *fod* or 11.130 km.
- *palme* – Palm, for circumference, 8.86 cm
- *alen* – Forearm, 2 *fod*
- *fod* – Defined as a *Rheinfuss* 31.407 cm from 1683, before that 31.41 cm with variations.
- *kvarter* – Quarter, 1 / 4 *alen*
- *tomme* – Inch, 1 / 12 *fod*
- *linie* – Line, 1 / 12 *tomme*
- *skrupel* – Scruple, 1 / 12 *linie*

Volume

- *potte* – Pot, from 1683 1 / 32 *foʔ*^s
- *smørtønde* – Barrel of butter, from 1683 136 *potter*
- *korntønde* – Barrel of corn, from 1683 144 *potter*

Weight

- *pund* – Pound, from 1683 the weight of 1 / 62 *foʔ*^s of water, 499.75 g

Miscellaneous

- *duzin* – 12
- *snes* – 20
- *gross* – 144

Dutch system

The Dutch system was not standardised until Napoleon introduced the metric system. Different towns used measures with the same names but differing sizes.

Some common measures:

Weight

- *Ons, Once* – 1/16 pond = 30.881 g
- *Pond* (Amsterdam) – 494.09 g (other ponds were also in use)
- *Scheepslast* – 4000 Amsterdam *pond* = 1976.4 kg = 2.1786 short tons

Length

- *duim* – 2.54 cm
- *kleine palm* – 3 cm
- *grote palm* – 9.6 cm, after 1820, 10 cm
- *voet* – 12 duim = abt. 29.54 cm, many local variations
- *el* – about 70 cm

Volume

- *Pint* – 0.6 l

Finnish system

In Finland, approximate measures derived from body parts and were used for a long time, some being later standardised for the purpose of commerce. Some Swedish, and later some Russian units have also been used.

- *vaaksa* – The distance between the tips of little finger and thumb, when the fingers are fully extended.
- *kyynärä* – c. 60 cm – The distance from the elbow to the fingertips.
- *syli* – fathom, c. 180 cm – The distance between the fingertips of both hands when the arms are raised horizontally on the sides.
- *virsta* – 2672 m (Swedish), 1068.84 m (Russian)

- *peninkulma* – 10.67 km – The distance a barking dog can be heard in still air.
- *poronkusema* – c. 7.5 km – The distance a reindeer walks between two spots it urinates on. This unit originates from Lapland (i.e. Sápmi).
- *leiviskä* – 8.5004 kg
- *kappa* – 5.4961 l
- *tynnyrinala* – 4936.5 m² – The area (of field) that could be sown with one barrel of grain.
- *kannu* – 2.6172 l
- *kortteli* – 148 mm (length) or 0.327 l (volume)

French system

In France, again, there were many local variants. For instance, the *lieue* could vary from 3.268 km in Beauce to 5.849 km in Provence. Between 1812 and 1839, many of the traditional units continued in *metrified* adaptations as the *mesures usuelles*.

In Paris, the redefinition in terms of metric units made 1 m = 443.296 *ligne* = 3 *pied* 11.296 *ligne*.

In Quebec, the surveys in French units were converted using the relationship 1 *pied* (of the French variety; the same word is used for English feet as well) = 12.789 inches (of English origin). Thus a square arpent was 5299296.0804 in² or about 36,801 ft² or 0.8448 acre.

There were many local variations; the metric conversions below apply to the Quebec and Paris definitions.

Length

- *lieue commune* – French land league, 4.452 km, 1/25 Equatorial degree
- 1 Roman cubit = 444 mm so 1000 Roman cubits = 4.44 km, a closer approximation to 1/25 degree
- *lieue marine* – French (late) sea league, 5.556 km, 3 nautical miles.
- *lieue de poste* – Legal league, 2000 *toises*, 3.898 km
- *lieue metrique* – Metric system adaptation, 4.000 km
- *arpent* – 30 *toises* or 180 *pieds*, 58.471 m
- *toise* – Fathom, 6 *pieds*. Originally introduced by Charlemagne in 790, it is now considered to be 1.949 m.
- *pied* – Foot, varied through times, the Paris *pied de roi* is 324.84 mm. Used by Coulomb in manuscripts relating to the inverse square law of electrostatic repulsion. Isaac Newton used the "Paris foot" in his *Philosophiae Naturalis Principia Mathematica*.
- *pouce* – Inch, 1/12 *pied* 27.070 mm
- *ligne* – 1/12 *pouce* 2.2558 mm

Area

- *arpent* – square arpent, 900 square *toises*, 3419 m²

Volume

- *litron* – 0.831018 liters

Weight

- *quintal* – 100 *livres*, 48.95 kg
- *livre* – 0.4895 kg

German system

Up to the introduction of the metric system, almost every town in Germany had their own definitions. It is said that by 1810, in Baden alone, there were 112 different *Ellen*.

Length

- *Meile* – A German *geographische Meile* or *Gemeine deutsche Meile* was defined as 7.420 km, but there were a wealth of variants:
 - Anhalt – 7532 m
 - Baden – 8889 m before 1810, 8944 m before 1871, 8000 m thereafter
 - Böhmen – 7498 m
 - Brabant – 5000 m
 - Bayern – 7415 m, connected to a 1/15 Equatorial degree as 25406 Bavarian feet.
 - Hamburg (Prussia) – In 1816, king Frederick William III of Prussia adopted the Danish mile at 7532 m, or 24000 Prussian feet. Also known as *Landmeile*.
 - Hessen-Kassel – 9206 m
 - Lippe-Detmold – 9264 m
 - Oldenburg – 9894 m
 - Osnabrück – 5160 m
 - Pfalz – 4630 m
 - Rheinland – 4119 m
 - Sachsen – *Postmeile*, 7500 m. Also 9062 m or 32000 feet in Dresden
 - Schleswig-Holstein – 8803 m
 - Westfalen – 11100 m, but also 9250 m
 - Vienna – 7586 m
 - Wiesbaden – 1000 m
 - Württemberg – 7449 m
- *Reichsmeile* – New mile when the metric system was introduced, 7.5 km. Prohibited by law in 1908.
- *Schainos* – Uncertain use, between 10 and 12 km,
- *Wegstunde* – One hours travel, used up to the 18th century. In Germany 1 / 2 *Meile* or 3.71 km, in Switzerland 16000 feet or 4,8 km
- *Stadion* – Uncertain use
- *Rute* – Roman origin, use as land measure. Very differing definitions, 10, 12, 14, 15, 18 or 20 feet, varied between approx. 3 and 5 m.
- *Klafter* – Fathom, usually 6 feet. Regional changes from 1.75 m in Baden to 3 m in Switzerland.
- *Elle* – Distance between elbow and finger tip. In the North, often 2 feet, In Prussia 17 / 8 feet, in the South variable, often 2 1/2 feet. The smallest known German *elle* is 402.8 mm, the longest 811 mm.
- *Fuss* – The foot varied between 23.51 cm in Wesel and 40.83 cm in Trier.
- *Rheinfuss* – Rhine foot, used in the North, 31.387 cm
- *Zoll* – Inch. Usually 1 / 12 foot, but also 1 / 10.
- *Linie* – Usually 1 / 12 inch, but also 1 / 10.

Norwegian system

Before 1541, there were no common definition for length measures in Norway, and local variants flourished. In 1541, an *alen* in Denmark and Norway was defined by law to be the Sjælland alen. Subsequently, the *alen* was defined by law as 2 Rhine feet from 1683. From 1824, the basic unit was defined as a *fot* being derived from astronomy as the length of a one-second pendulum times 12/38 at a latitude of 45°. The metric system was introduced in 1887.

Length

- *alen* – Forearm, 62.748 cm from 1824, 62.75 cm from 1683, 63.26 cm from 1541. Before that, local variants.
- *favn* – Fathom (pl. *favner*), 1.882 m.
- *fjerdingsvei* – Quarter mile, alt. *fjerdings*, 1/4 *mil*, i.e. 2.82375 km.
- *foot* – Foot, 1/2 *alen*. From 1824, 31.374 cm.
- *kvarter* – Quarter, 1/4 *alen*.
- *linje* – Line, 1/12 *tomme* or approx. 2.18 mm
- *lås* – 28.2 m
- *landmil* – Old land-mile, 11.824 km.
- *mil* – Norwegian mile, spelled *miil* prior to 1862, 18000 *alen* or 11.295 km. Before 1683, a *mil* was defined as 17600 *alen* or 11.13 km. The unit survives to this day, but in a metric 10 km adaptation
- *rast* –Lit. "rest", the old name of the *mil*. A suitable distance between rests when walking. Believed to be approx. 9 km before 1541.
- *steinkast* – Stones throw, perhaps 25 *favner*, used to this day as a very approximate measure.
- *stang* – Rod, 5 *alen* or 3.1375 m
- *tomme* – Thumb (inch), 1/12 *foot*, approx. 2.61 cm. This unit was commonly used for measuring timber until the 1970s. Nowadays, the word refers invariably to the Imperial inch, 2.54 cm.
- *skrupel* – Scruple, 1/12 *linje* or approx. 0.18 mm.

Area

- *mål* – 100 *kvadrat rode*, 984 m². The unit survives to this day, but in a metric 1000 m² adaptation.
- *kvadrat rode* – Square *stang*, 9.84 m²
- *tønneland* – "Barrel of land", 4 *mål*

Volume

- *favn* – 1 *alen* by 1 *favn* by 1 *favn*, 2.232 m³, used for measuring firewood to this day.
- *skjeppe* – 1/8 *tønne*, i.e. 17.4 l.
- *tønne* – Barrel, 139.2 l.

Weight

- *bismerpund* – 12 *pund*, 5.9808 kg
- *laup* – Used for butter, 17.93 kg (approx. 16.2 l). 1 *laup* is 3 *pund* or 4 *spann* or 72 *merker*.
- *merke* – From Roman pound, (pl. *merker*), 249.4 g, 218.7 g before 1683.
- *ort* – 0.9735 g
- *pund* – Pound, alt. *skålpund*, 2 *merker* 0.4984 kg, was 0.46665 kg before 1683
- *skippund* – Ships pound, 159.488 kg. Was defined as 151.16 kg in 1270.
- *spann* – Same as *laup*
- *vette* – 28.8 *mark* or 6.2985 kg.
- *våg* – 1/8 *skippund*, 17.9424 kg.

Nautical

- *favn* – Fathom (pl. *favner*), 3 *alen*, 1.88 m
- *kabellengde* – cable length, 100 *favner*, 185.2 m
- *kvarthmil* – Quarter mile, 10 *kabellengder*, 1852 m
- *sjømil* – Sea mile, 4 *kvarthmil*, 7408 m, defined as 1/15 Equatorial degree.

Monetary

- *ort* – See *riksdaler* and *speciedaler*.
- *riksdaler* – Until 1813, Norwegian *thaler*. 1 *riksdaler* is 4 *ort* or 6 *mark* or 96 *skilling*.
- *skilling* – Shilling, see *riksdaler* and *speciedaler*.
- *speciedaler* – Since 1816. 1 *speciedaler* is 5 *ort* or 120 *skilling*. From 1876, 1 *speciedaler* is 4 *kroner* (Norwegian crown, NOK).

Miscellaneous

- *tylft* – 12, also *dusin*
- *snes* – 20
- *stort hundre* – Large hundred, 120
- *gross* – 144

Romanian system

The measures of the old Romanian system varied greatly not only between the three Romanian states (Wallachia, Moldavia, Transylvania), but sometimes also inside the same country. The origin of some of the measures are the Latin (such as *iugăr* unit), Slavic (such as *vadră* unit) and Greek (such as *dram* unit) and Turkish (such as *palmac* unit) systems.

This system is no longer in use since the adoption of the metric system in 1864.

Volume

- *Oca* – 1,5 litres (Moldavia); 1,25 litres (Wallachia)
- *Litră* – 1/4 *oca*
- *Baniță* – 21,5 litres (Moldavia); 33,96 litres (Wallachia)
- *Chiup* – 30–40 litres (a *chiup* was a large clay pot for liquids)
- *Câblă* – A bucket of wheat
- *Merță* – 110–120 *ocale* (Moldavia); 22,5 litres (Transylvania)
- *Feredelă* – 1/4 bucket (Transylvania)
- *Obroc mare* – 44 *ocale*
- *Obroc mic* – 22 *ocale*
- *Giumătate* – 80–100 *vedre* (*poloboc*)
- *Vadră* – 10 *ocale*; 12,88 litres (Wallachia); 15 litres (Moldavia)
- *Pintă* – 3,394 litres (Transylvania)
- *Tină* – *Vadră* (Transylvania)

Weight

- *Dram* – 3,18–3,25 g sau 3,22–3,80 cm³
- *Font* – 0,5 kg (Transylvania)

Area

- *Falce* – 1,43 ha
- *Pogon* – 0,5 ha

- *Prăjină* – 180–210 m²
- *Feredelă* – 1/4 *pogon*
- *lugăr* – the area ploughed in one day by two oxen – 7166 m² (Transylvania in 1517); 0,57 ha or 1600 *square stânjeni* (later)

Length

- *Palmă* (palm) – 1/8 of a *stânjen*
- *Stânjen* – 2 m (approximately)
- *Palmac* – 3,48 cm (Moldavia)
- *Poștă* – 8 – 20 km (depending on the country)
- *Pas mic* (small step) – 4 *palme* (Wallachia)
- *Pas mare* (large step) – 6 *palme* (Wallachia; Moldavia)
- *Lat de palmă* (palm width) – 1/2 *palmă*
- *Cot* (cubit) – 0,664 cm (Moldavia); 0,637 cm (Wallachia)
- *Funie* (rope) – 20 – 120 m (depending on the place)
- *Leghe* (league) – 4,444 km;
- *Deget* (finger) – the width of a finger
- *Prăjină* – 3 *stânjeni*
- *Verstă* – 1067 m
- *Picior* (foot) – 1/6 of a *stânjen*

Russian and Tatar systems

See:

- [Obsolete Russian weights and measures](#)
- [Obsolete Tatar weights and measures](#)

Scottish system

Length

- inch – 2.554 cm
- foot – 12 inches, 30.645 cm
- *ell* – Elbow, 37 Scots inches. 94.5 cm
- *fall* – 18 Scots feet
- mile – 320 *falls*, 1814.2 m

Spanish system

There were several variants. The Castilian is shown.

Length

- *punto* – Point, 1 / 12 *línea*
- *línea* – Line, 1 / 12 *pulgada*
- *pulgada* – Inch, 1 / 36 *vara*, 0.02322 m
- *pie* – Foot, 12 *pulgadas*, 0.2786 m

- *vara* – Yard, 0.8359 m
- *paso* – Pace, 60 *pulgadas*
- *legua* – League, 5000 *varas*, approx 4.2 km

Swedish system

In Sweden, a common system for weights and measures was introduced by law in 1665. Before that, there were a number of local variants. The system was slightly revised in 1735. In 1855, a decimal reform was instituted that defined a new Swedish inch as 1/10 foot. It did not last long, because the metric system was subsequently introduced in 1889. Up to the middle of the 19th century there was a death penalty for falsifying weights or measures.

Length

- *aln* – Forearm (pl. *alnar*). After 1863, 59.37 cm. Before that, from 1605, 59.38 cm as defined by king Carl IX of Sweden in Norrköping 1604 based on the *Rydaholmsalnen*.
- *famn* – Fathom, 3 *alnar*.
- *kvarter* – Quarter, 1 / 4 *aln*
- *fot* – Foot, 1/2 *aln*. Before 1863, the Stockholm fot was the commonly accepted unit, at 29.69 cm.
- *linje* – Line, after 1863 1/10 *tum*, 2.96 mm. Before that, 1/12 *tum* or 2.06 cm.
- *mil* – Mile, also *lantmil*. From 1699, defined as a unity mile of 18000 *aln* or 10.69 km. The unified mile was meant to define the suitable distance between inns.
- *nymil* – New mile from 1889, 10 km exactly. Commonly used to this day, normally referred to as *mil*.
- *kyndemil* – The distance a torch will last, approx 16 km
- *skogsmil* – Also *rast*, distance between rests in the woods, approx 5 km.
- *fjärdingsväg* – 1 / 4 *mil*
- *stenkast* – Stone's throw, approx 50 m, used to this day as an approximate measure.
- *ref* – 160 *fot*, for land measurement, was 100 *fot* after 1855.
- *stång* – 16 *fot*, for land measurement
- *tum* – Thumb (inch), after 1863 1/10 *fot*, 2.96 cm. Before that, 1/12 *fot* or 2.474 cm.
- *tvärhand* – Hand, 4 inches.

Area

- *kannaland* – 1000 *fot*², or 88.15 m²
- *kappland* – 154.3 m².
- *spannland* – 16 *kappland*
- *tunneland* – 2 *spannland*
- *kvadratmil* – Square *mil*, 36 million square *favnar*, from 1739.

Volume

- *pot* – Pot (pl *pottor*), 0.966 l
- *tunna* – 2 *spann*
- *ankare* – Liquid measure, 39.26 l
- *ohm* – Also *åm*, 155 *pottor*
- *storfavn* – 3.77 m³
- *kubikkfavn* – 5.85 m³

Weight

- *skeppspund* – Ships pound, 20 *lispund* or 170.03 kg.
- *bismerpund* – 12 *skålpund*, 5.101 kg.
- *lispund* – 20 *skålpund*
- *skålpund* – Pound, 0.42507 kg
- *mark* – 1 / 2 *skålpund* or 212.5 g. Used from the Viking era, when it was approx 203 g.
- *ort* – 4.2508 g

Nautical

- *kabellängd* – Initially 100 *famn* or 178 m, Later, a *distansminut* or 1 / 10 nautical mile.
- *kvartmil* – Quarter mile, 1852 m, identical to nautical mile.
- *sjömil* – Sea mile, 4 *kvartmil*, 7408 m

Monetary

- *daler* – From 1534, Swedish *thaler*. From 1873, replaced by the *krona* (Swedish crown, SEK).
- *riksdaler* – From 1624, 1 1/2 *daler*, from 1681 2 *daler*, from 1715 3 *daler*, from 1776 6 *daler*
- *skilling* – From 1776, 1 / 48 *riksdaler*
- *mark* – From 1534, 1 / 3 *daler*. From 1604, 1 / 4 *daler*.
- *öre* – From 1534, 1 / 8 *mark*. Subsequently replaced by the *skilling*, but from 1855 reintroduced as 1 / 100 *riksdaler*.

See also

- Weights and measures
- Ancient weights and measures
- Mesures usuelles
- English unit

References

- *Measure for Measure*, Richard Young and Thomas Glover, ISBN 1-889796-00-X.
- *Masse und Gewichte*, Marvin A. Powell
- *The Weights and Measures of England*, R. A. Connor
- *World Weights and Measures. Handbook for Statisticians*, UN Department of Economic and Social Affairs
- *Lexikon der Münzen, Maße, Gewichte, Zählarten und Zeitgrößen aller Länder der Erde*, Richard Klimpert, 1896
- *Grand dictionnaire universel du XIXe siècle*, Pierre Larousse, 1874
- *De gamle danske længdeenheder*, N.E. Nørlund, 1944
- *Mål og vægt*, Poul Rasmussen, 1967.
- *Med mått mått - Svenska och utländska mått genom tiderna*, Albert Carlsson, ISBN 91-36-03157-7.

External links

- Extensive list of Dutch measures (<http://www.rabbel.info/Olddumes.html#coinsweights>)
- Dictionary of Units of Measurement (<http://www.unc.edu/~rowlett/units/>)
- Units of measure (<http://www.sizes.com/>)
- Unit systems (https://web.archive.org/web/20041206053827/http://unicon.netian.com/unitsys_e.html)
- Mile measurements (https://web.archive.org/web/20041208185326/http://www.kb.nl/kb/resources/frameset_kb.html?%2Fkb%2Fskd%2Fskd%2Fmathemat.html)
- Old units of measure (<http://www.du.edu/~jcalvert/tech/oldleng.htm>)

- [English Customary Weights and Measures \(http://www.unc.edu/~rowlett/units/custom.html\)](http://www.unc.edu/~rowlett/units/custom.html)
- [Alte Längenmaße und ihre Bedeutung \(https://web.archive.org/web/20040904130641/http://www.j-lorber.com/Texte/Masse.html\)](https://web.archive.org/web/20040904130641/http://www.j-lorber.com/Texte/Masse.html)
- [Projekt zur Erschliessung historisch wertvoller Altkartenbestände \(http://ikar.sbb.spk-berlin.de/werkzeugkasten/sonderregeln/4_3.htm\)](http://ikar.sbb.spk-berlin.de/werkzeugkasten/sonderregeln/4_3.htm)
- [Scandinavian units \(http://www.maritimt.net/trj/hjelpetabeller.htm\)](http://www.maritimt.net/trj/hjelpetabeller.htm)
- [Swedish units \(https://web.archive.org/web/19981205105612/http://www.algonet.se/%7Ehogman/slmatt.htm\)](https://web.archive.org/web/19981205105612/http://www.algonet.se/%7Ehogman/slmatt.htm)

Retrieved from "https://en.wikipedia.org/w/index.php?title=Medieval_weights_and_measures&oldid=832637788"

This page was last edited on 27 March 2018, at 04:37.

Text is available under the [Creative Commons Attribution-ShareAlike License](#); additional terms may apply. By using this site, you agree to the [Terms of Use](#) and [Privacy Policy](#). Wikipedia® is a registered trademark of the [Wikimedia Foundation, Inc.](#), a non-profit organization.